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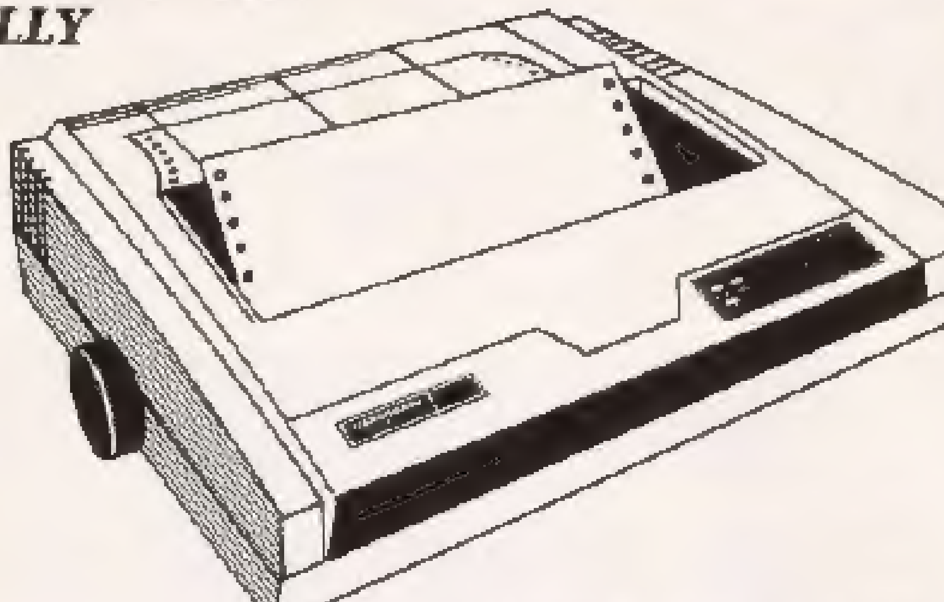

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IN TO

Martin Banks br

Modems get cheaper

It would appear that the humble modem is the latest target for all that 'white heat of technology' stuff.

In the good old days of computing, these devices were big and they were expensive. Not any more, however. Technology has been applied to the beasts and the prices are suffering the consequences. Not that the users will mind very much if the prices start touching rock bottom.

They haven't got that far yet, but they're starting to get close. Only earlier this year, getting the price of a modem under £100 was considered a good trick. Now here's one priced at £84. It comes from a Welsh company, DEL, and is called Telemod 2. This can provide connections to Prestel, Micronet 800 and other viewdata services for a wide range of machines, including the BBC Model B, Commodore 64, Atari, Apple IIe, Tandy Model III and Commodore's business machines.

More info on 0788 68748.

TORCH CELL
TORCH

Upgrades for the Beeb

A complete family of upgrade products for the BBC Micro has now been made available from Torch Computers. It gives users the option to take the Beeb machine right through to a Unix-running, 68000-based business machine.

Collectively known as the Unicorn range, the upgrade family has as its star product the 68000 hard disk pack. This effectively turns the Beeb into a keyboard for a high-powered micro. The hard disk unit contains a 68000 processor, a Z80B for running CP/M programs, 256 kbytes of RAM, a 20 Mbyte hard disk and a 400 kbyte floppy. This little lot, together with Unix System III and Torchnet operating systems, costs under £2900.

The existing Torch Z80 disk pack for the Beeb has now been integrated into the Unicorn product family. This offers 800 kbytes of disk storage, a Z80 second processor with 64 kbytes of RAM and a complete set of business software.

The final member of the family is the extension processor, which allows BBC owners already equipped with disk drives from other sources to get into the act. This has a Z80 processor with 64 kbytes of RAM coupled to a full range of business software. It costs £375.

More info on the Unicorn family from 0223 841000.

Serious software

As the number of domestically-oriented professional computer users increases, so the number of packages being introduced to support them also grows. Among the latest to appear are some from an engineering company, Bel Tech, which has decided that home computers need a little more than games software to play with.

The company has launched two professionally-oriented packages in among a number of releases for the hobby and educational markets. These are Bel Graph and Bel Base, respectively a graphics package and a database system. They are available to run on the BBC Model B, the 48k Spectrum and the Commodore 64, with versions for other machines to follow shortly.

Bel Graph, seen here in action, has been designed to produce line graphs, bar charts and pie charts. Data is entered in four records, each having up to 52 numeric fields, and entry can be either from the keyboard or from an existing data file. It's also possible to enter an equation in either standard or parametric form, so long as legal Basic expressions are used.

Further details on 07482 5420.

OUCH

ngs you the news.

Plenty of ROM inside

Most of the faithful who sit awaiting the first coming of the QL will know that it comes — when it comes — with some interesting applications packages bundled into the selling price. These programs — a spreadsheet, a database system, a word processor and a business graphics package — all come on Microdrive cartridges — for now, that is.

It seems that the company responsible for the packages — Psion — is considering the possibility of putting the four packages onto a ROM cartridge designed to plug into the left-hand side expansion port on the QL. Though it has one current major disadvantage, the move could offer one or two interesting advantages to the user.

The big disadvantage is likely to be only temporary — cost. There is currently a cost penalty in trying to engineer ROMs containing the packages. For one thing there just isn't the volume demand for such an effort to be made at present. Once the installed base of QLs increases, however, there will be a large enough market to make a plug-in cartridge a viable product.

But why should a user pay twice as much for the same program, seeing as they come 'free' with the QL in the first place?

The main reason is that by using a ROM cartridge instead of a Microdrive tape, the user gains immediate access to the best part of 60 Kbytes of additional memory. This occurs because the Microdrive versions will be loaded into the user RAM of the QL so that the program can be run. With a ROM cartridge, there is no need to load into RAM so the space taken up by the program will be free for the user. Keen types could find this facility very useful.

Printing the word

What do you do once you have used your splendid word processing package to produce startlingly erudite prose? Do you switch off the computer and go down to the pub or do you print it out for the benefit of future generations?

If the answer in any way corresponds to the latter then the new Letterpro 20 printer from Qume might prove interesting. Costing £895, it is a daisywheel machine aimed specifically at those who indulge in the art of word processing. It is claimed to be plug-compatible with most makes of personal computer and is supplied with a range of interfaces, including Centronics parallel, RS232 and Qume parallel. Various optional accessories are available for this 20-characters-per-second newcomer.

Details on 0734 884566.

Adding to the QL

Well, yes, we understand about the little difficulty in actually getting any QLs into the hands of users, let alone into the hands of third party software and add-on companies. But that hasn't stopped some of the latter making all sorts of grand announcements.

Indeed, many of these companies are quite open in their attempts to locate a spare QL machine, even for just a few hours, so that they can find out how it works and how to interface add-on hardware to it.

Though they haven't got any machines to play with, it has not stopped some of them introducing new products specifically for the QL market. This can be seen as quite an interesting example of faith in action.

One of the first companies to announce a new product, or to be more exact, a modification of an existing product, is Microvitec, which makes monitor displays. The company has announced a new version of its Cub colour monitor that is said to be compatible with the QL. It features a 14-inch screen with a resolution of 653 x 585 pixels, which the company claims makes it well suited to the graphics capabilities of the QL.

For all those who want to upgrade the unupgradeable (in other words, transport existing Spectrum software into the QL environment) there is a theoretical solution to the problem on the horizon. It is theoretical at the moment because the product does not yet exist (though it might by the time you read this). The product in question is a Spectrum Emulator which will — or should be — available on a QL Microdrive cartridge. Load this into the QL and the machine will then be able to run existing Spectrum programs held on cassette.

The product, being developed by a company calling itself Joe-the-Lion (yes, really), does face one or two problems, however. At the time of writing, it is still seeking programmers with experience of Z80 and 68000 machine code so the programs can be written. It will also require the development of a special interface connector to allow a cassette machine to be plugged into the QL, which lacks such an interface as standard.

Several other companies are rumoured to be working on floppy and hard disk add-ons to overcome the potential deficiencies of the right-hand end of the QL.

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The software offers you: Variable line length, programmable printer control, high resolution screen copy in single or double size.
Start using it right away by connecting the interface to the printer via the appropriate cable (make sure your Spectrum power is off), plug the interface onto the back of the computer, switch power on, then simply load the supplied configuration cassette by typing "LOAD". Once loaded, simply follow the menu instructions and create a new tape customised to your printer requirements!
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IN TOUCH

Tracing the BBC

Owners of BBC micros will now be able to directly enter graphic images into their systems with the new Digital Tracer from RD Laboratories. This is the latest addition to a family of tracers which already covers the Spectrum.

The tracer consists of two pivoted tracing arms whose rotational movements are monitored by high quality potentiometers. These are interfaced for direct connection to the BBC Model B.

Accurate reproduction of an image over an area the size of an A3 page is claimed for the arm, which comes complete with a software package that allows a wide range of graphic displays to be used. The basic drawing routines are: thin and emphasised lines, with dotted options; straight line joins between two points; and a fast colour fill for both irregular and geometric shapes, which ensures their vivid display.

There is also a series of geometric constructions available, all of which can be sampled and moved on screen before entry. This facility is also available for text and the combination of these features means that such business applications as bar graphs and pie charts can be created and edited very quickly. The software is available in either cassette or disk format (the latter actually produced on cassette) and the whole lot costs — no, not an arm and a leg — just £65.95 including VAT.

RD Laboratories can be found in Cwmbran, Wales, on 06333 74333.

Epson starts packing

What many business people need when they are contemplating getting involved with all this computer-type stuff is a helping hand, especially when it comes to buying all the necessary bits and pieces that are needed to make a fully working system. That is why many companies are now offering 'starter packs', accumulations of all the basic equipment that a user will need to get going.

One of the latest companies to launch a starter pack is Epson, which has knocked together the introductory Starter Pack for the QX-10 desktop machine. This consists of a QX-10, an RX-80 dot matrix printer and Peachtree software.

The QX-10 is getting to be a well-known workhorse of the 'use a Z80 and run CP/M programs' variety. It comes with 192 kbytes of memory as standard and this can be upgraded to 256k. The printer has a print speed of 100 characters per second, dot-addressable graphics, condensed and double-width printing and a Centronics 8-bit parallel interface as standard. It comes with a tractor feed and has 128 character styles and 11 character sets.

The Peachtree business software includes all that one would expect for the tasks in hand. This means that it has word processing, spelling checker, mailing list manager and a spreadsheet. The all-up cost of the starter pack is £1995.

Lynx grows a Laureate

Having played the bridesmaid to Sinclair and Commodore in the home computer/games-playing market with its Lynx 48 and 96 models, Camputers is making an early and concerted pitch to be the bride in the emerging small professional computer market-place.

It has recently launched a 128 variant of the Lynx and re-packaged it as a pukka small business/professional machine to be sold under the name Laureate.

The main feature of this machine is the incorporation of the CP/M operating system. Now this may not be called a feature by some people, especially as it is the ordinary 2.2 version of the system which is included. But dear old CP/M is an important tool in getting into the small business market quickly. Innovative it is not (well, not now) but it instantly brings with it a wealth of available applications software and that is what the small business user requires.

The Laureate has 128 kbytes of RAM, although only half of this is directly available to the user. The rest is taken up by the video memory. This can provide display resolutions of 512 by 248 pixels, each of which is individually addressable in up to eight different colours. For text work, it provides 40, 64 and 80 column displays, plus compatibility with the 48 and 96 Lynxes.

It comes with an on-board 24k of ROM which holds the Lynx extended Basic. This incorporates high resolution graphics including circles and shading.

A professional system is no good without secondary storage of some sort and the Laureate is not exception to this rule. Disk drives are available for the machine with the user specifying whether CP/M 2.2 is to be the operating system used or whether it is to be Camputers' own DOS. Camputers itself will be making one or two applications programs available, all from US software house Perfect Software (a modest bunch). These include Perfect Writer, Perfect Filer and Perfect Speller. The basic box from Camputers will cost [illegible], including VAT — coincidence huh?

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IN TOUCH

The non-invasion

Over the past four or five years there have been many predictions that the Japanese were coming to take over the world's personal computer business. The industrious orientals had managed to pull it off in motorcycles, cameras, hi-fi and televisions, so there seemed no reason why they shouldn't in the consumer computer marketplace.

Notwithstanding their successes in other industries and market sectors, the Japanese promptly ignored all these predictions of their success and failed to take the market by storm. In fact they all but failed to show at all, except in a few areas. Even in the world of the desk-top small business system, the Japanese manufacturers corporately missed the boat. And as IBM showed so graphically with its PC, there was a very big boat waiting to be caught.

The basis of the Japanese failure was software, or more specifically, the lack of it. Because both systems and applications software has proved to be at least as important as hardware in the personal computer market, and because the Japanese have taken no real position in either area, their hardware has not been well received, generally speaking.

To make an impression on a maturing marketplace, they needed what was demonstrated years before by the CP/M operating system and the S-100 bus: a degree of standardisation.

This the Japanese manufacturers now have — as does any other company wishing to adopt the standard. Microsoft, the US systems software house, launched the MSX hardware and software package specification last year with the Japanese specifically in mind. Here was a package around which they could all build a standardised range of machines. With the right parts standardised, software companies would be able to produce programs just once and have the whole MSX-oriented marketplace to aim at. That, at least, is the theory.

The potential advantages of MSX are many, not the least of which is the fact that software producers can target the whole range of machines in one go. Another is the fact that there is a degree of compatibility on the software side between MSX and its bigger brother in the 16-bit micro field, MS-DOS. This compatibility allows for a degree of file transfer, meaning that an MSX machine can start life as a simple, stand-alone games player like so many other home computers currently available, and then grow into a tolerable professional computer capable of doing some real work with real files and tasks.

This aspect is attracting a modicum of attention for the MSX family, for the machine could become among the front-runners in the just-emerging professional computing market. But to develop this area, commonality and compatibility are crucial, and there are hints that the Japanese are, in practice, about to 'blow it' once again in the computer business.

The early MSX machines are now starting to appear. Not in Europe yet, but soon to arrive, no doubt. Not surprisingly, there are differences between them, which shouldn't normally matter — but it appears they might.

True to form, each Japanese manufacturer has tended towards trying to build a better 'mousetrap' than its competitors, adding more gizmos and things to the basic standard package. The end result, according to word emanating from the orient, is that some of the 'additions' and 'enhancements' to individual MSX machines are creating situations in which software written to accommodate those differences won't always run on other machines . . .

If this proves to be largely the case with the Japanese machines then it is likely that most of them will die in the Western marketplace.

Computer in hand is worth two in post

By the time you read this there is a chance that someone, somewhere will have gotten their hands on a real live for sale type of QL. This is to differentiate it from the just-made-a-few-and-given-them-to-journalists-for-review type of QL.

As was wearily predicted by ageing journalists sitting at the back of the room at the QL launch, delivery schedules were geared to the old maxim of '28 days but don't say *which* 28 days'. This of course meant that the many people who fired off cheques and credit card numbers to the company and sat back expectantly have continued to do so, some with a little tear in the corner of their eyes.

Not surprisingly the company is not commenting on the many rumours now circulating as to why there has been the delay, except to say that there have been some 'development problems'.

In this area there have been rumours about problems getting the multi-tasking operating system to work and with getting the new version of Basic into the ROM.

There are those cynics who have suggested that the QL would only ever appear 28 days after the computer press started making totally unjustifiable accusations of a debacle in the management of the project, though such views are not given much credence.

What has proved more worrying from the point of view of many of those people who have placed orders is the fact that their money has already been taken. This is not to imply that Sinclair has just pocketed the loot and not delivered but the fact is that those who have paid for their QL by cheque have had them cashed. The money has been placed in a trust fund.

This posed the question 'what happens to the interest from the fund?' Some cheque payers have talked about getting their share of the accruing interest the fund is generating, but Sinclair managing director Nigel Searle has claimed that it would be too difficult, administratively, to carry out this task. This is indeed an interesting observation for a company selling high technology equipment aimed at information processing.

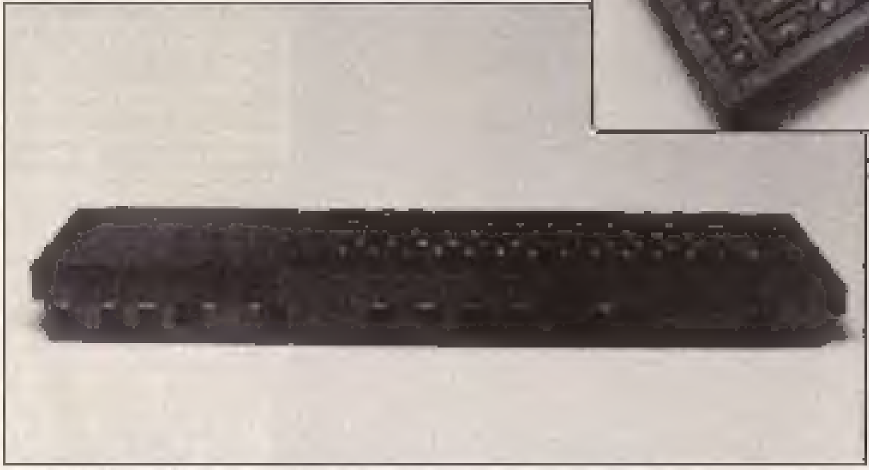
What the punters will get is a 'free' gift from Sinclair in lieu of the interest earned. Some cynics have suggested that this might be a Black Watch but it will probably be some additional software. Given that some people will have waited four months by the time their QL arrives, they will have four months accrued interest to account for. Look for software worth at least £15 *to Sinclair* — a retail value of £40-£50.

THE JUNIO

Peter Rodwell gets his hands on IBM's latest, the PCj

The latest market to come under the attack of the micro-makers is the boundary between home and office. The theory is that many businessmen want a computer which is cheap enough for the home but can be used for more serious things, too.

Trying to sell traditional business machines to home users has, of course, never been successful because the hardware is just too expensive. And although the idea of trying to use a low-cost home machine for work has been pushed by the home computer manufacturers for years, it has never been a very convincing sales tactic: most home machines are patently unsuited to business use, although this might not often be apparent to somebody looking for a small business system — until they tried using the machine.



QL has bigger, nicer keyboard (top) and tidier back panel (above).

Now we have two major companies competing for the home/business boundary, IBM and Sinclair. The two have taken different approaches, reflecting their backgrounds: IBM has long dominated the big mainframe and mini market and has achieved similar status in the USA micro scene with its PC. Now it has gone 'down-market' with its PCjr, a 'sawn-off' PC with the right features to appeal to the home/games buyers but with many of the business capabilities of its big brother.

Sinclair has captured the major slice of the European home market with its low-cost machines and has now gone 'up-market' with a business micro capable of performing some neat tricks yet still cheap enough — just — to cream off the top of the home buyers, specifically (one suspects) people thinking of buying a BBC machine.

Although we can compare the two machines on paper, one big unknown is still throwing a spanner in the works: we don't yet know how much the PCjr will cost in the UK. It's pretty obvious that it will be much more expensive than the QL, possibly around the price of an Apple IIe. The PCjr's European success will depend heavily on its price. If it's significantly more than the QL, then it could probably take over the slot about to be left vacant by the dying Apple II. It will, however, find the going very tough — at least in Europe — as this niche will become the arena for some very tough competition over the next year or so.

Alternately the home/business boundary could be wide enough for the PCjr and the QL to fill opposite ends of the spectrum (sorry). All this preoccupation with 'market positions' is, by the way, just one sign that the micro market is maturing. Increasingly, computer manufacturers are thinking in terms of model ranges to fill different pockets, just as car manufacturers have been doing for decades.

The Sinclair QL

As *QL User* is all about the QL, I won't waste space here by going into its full specification again. Instead, let's concentrate on the features which will appeal most to its buyers, both home and business.

First the businessman. There's no point at all in buying any business computer unless software is available to turn it into a useful business tool: writing your own stock control package is so time consuming — even if you're a professional programmer — that it simply doesn't make commercial sense. The exception is if your requirements are so arcane that there simply isn't any software available off the shelf. Then you'll have to write your own or employ a programmer to write it for you. Generally, though, a major criterion for the success of a business computer is the availability of useful business software to run on it.

The QL comes with four business packages included in the price. We

R V THE QL

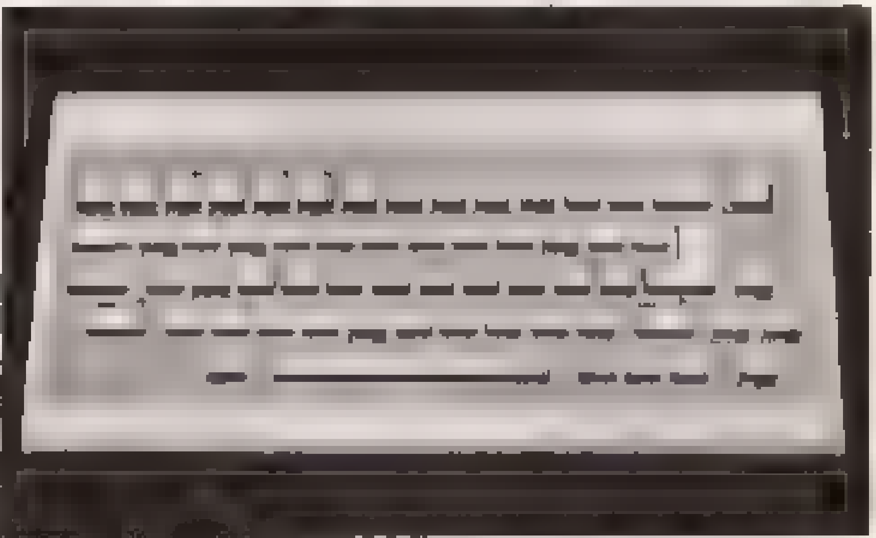
and assesses its chances against the QL

have yet to evaluate these fully, so we cannot yet comment on how likely or otherwise they are to meet the needs of QL buyers. However, on paper at least they cover the major applications areas in business computing: word processing, database management and spreadsheet work. A fourth package allows graphics to be created (pie and bar charts and graphs etc); this may not strike many businessmen as essential but it's a fast growing applications area as it offers a more efficient way of presenting information.

By using its own operating system, QDOS, rather than an industry standard one, Sinclair has isolated the QL from a vast pool of ready-to-run software. At launch time, no software was available for the QL other than the above mentioned four programs. On the face of it, this is a big disadvantage, but you can be sure that software houses are already hard at work producing QL versions of existing packages and writing new products. The forthcoming C compiler for the QL will make this task much easier — there is already a large amount of software written in C which could be ported onto the QL.

At the moment, then, the QL buyer could be rather frustrated if the QL's own software doesn't meet his needs. Within a very short time though, there will be plenty of software to choose from, even though you might not be able to run your favourite CP/M package on the Sinclair.

For the home/hobbyist QL buyer, the situation is not quite so critical. For a start, many people will be content to write their own software, but in any case there'll be no shortage of games — initially straight Spectrum translations to the machine. With the extra memory and better screen resolution (especially when used with a colour monitor rather than a TV), we can look forward to seeing some really good games on the QL.



You can't touch-type on the PCjr (above).

The IBM PCjr

The PCjr is IBM's first-ever venture into the home market, just as the PC itself was Big Blue's first — and highly successful — attempt to join the micro league.

With the PC, IBM very cleverly got it right at the first attempt. After all, it knew very well what the business computer market was all about and it took the trouble to research the micro scene very carefully, and to fit in with it rather than to try and make the micro industry conform to the IBM way of thinking. Of course, in a subtle way it *did* force the market round to the IBM way by making its machine so successful.

But whether IBM will have the same success with the PCjr is highly debatable. The domestic market is something entirely new to IBM and there are signs that it has not researched this area as thoroughly as it did the business micro market.

Firstly, the PCjr is [illegible] expensive by [illegible] [illegible]. This might not have been too much of a mistake in itself, but there are two problems.

The PCjr is not fully compatible with its bigger brother. There is now a massive pool of software for the PC and some of it just won't run on the PCjr, including MicroSoft's smash hit Flight Simulator. Thus IBM has in one stroke destroyed a gigantic potential market — those people who have a PC at the office and want to carry home a few disks of work or in the evening with their PCjr. Sure, the machines are disk-compatible, but there's no guarantee that the software you use at work is going to run on your PCjr at home.

IBM's second problem is the new Apple Macintosh. This has been greeted with huge acclaim in the States and is already the machine of the moment. It costs more than the PCjr but it has those sexy little icons which, in the States, are compulsory if you don't want your neighbours to

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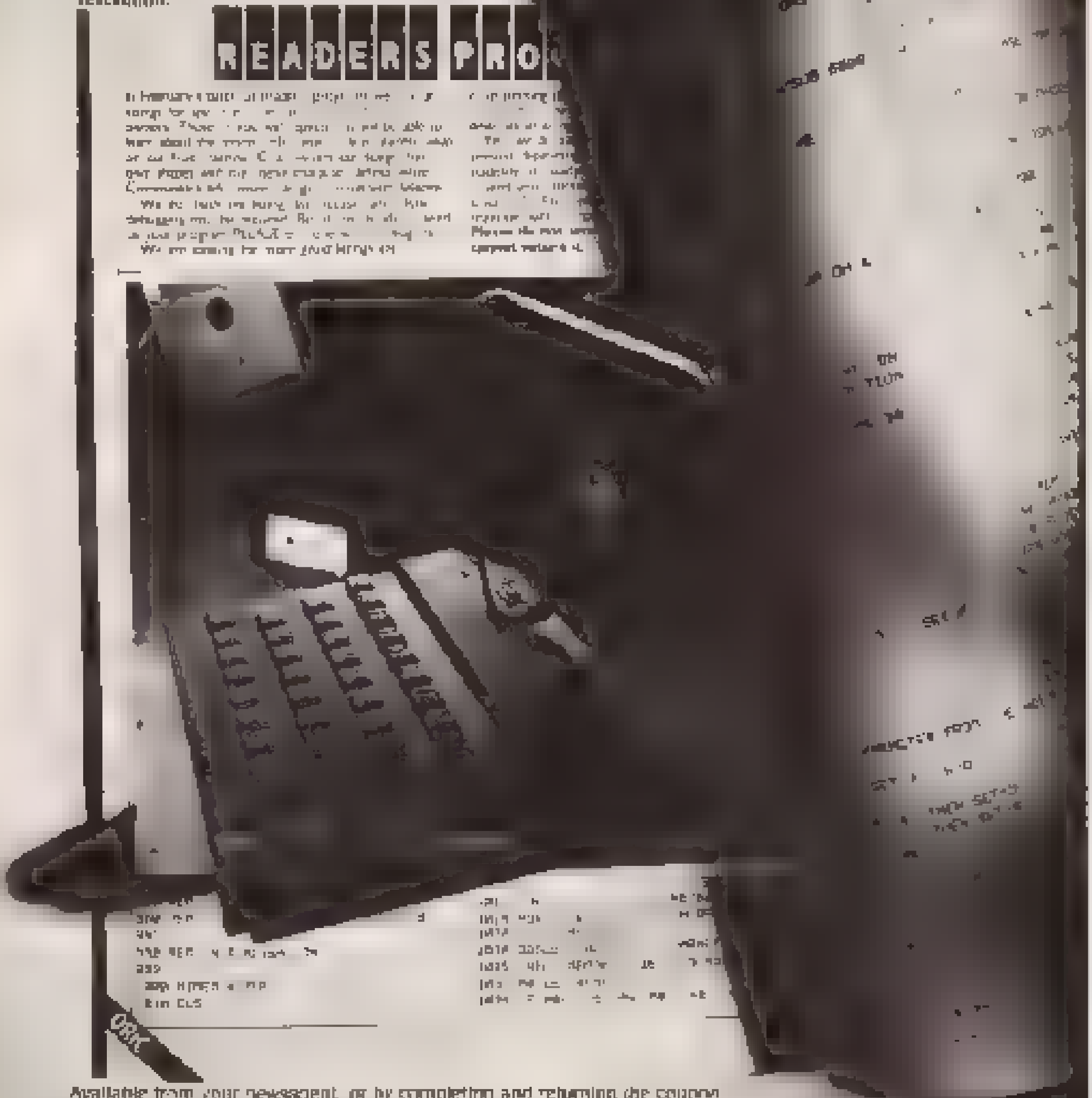

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WHICH MICRO? & SOFTWARE REVIEW

THE JUNIOR V THE QL

[illegible] you're slipping off the leading edge.

[illegible] will [illegible] IBM will [illegible] ever say whether [illegible] the month [illegible] will [illegible] here. Already badly [illegible] by the successes of the Sirius and Apricot, IBM will be looking [illegible] PCjr [illegible] against the QL but against low-cost business alternatives. Things are that PC sales in the UK have mainly been to large corporations with DP departments which know [illegible] other computer manufacturers. Stacked up against many 16-bit machines, the PC offers poor value for money, even after a recent desperate 20 per cent price cut, and [illegible] those magic three initials don't carry as much weight here as they do [illegible].

Marketing apart, though, what does the PCjr offer? Well, it does come as a neat package, about half the size of the PC, but with a nasty keyboard and 64k of RAM. The machine has a simple Basic in ROM, which allows you to use some — but by no means all — of the machine's capabilities.

There are two cartridge slots at the front [illegible] which you must insert the optional Cartridge Basic ROM pack before you can get down to [illegible] things.

The keyboard has [illegible] fewer keys than that of the PC, but the use of [illegible] Alt and Func keys allows you to [illegible] of the PC keyboard's functions, albeit less [illegible]. The keyboard is linked to the main unit by an infra-red link, although in practice this [illegible] be annoying [illegible] as it only really functions well when the keyboard is [illegible]. There's a cable to join them together [illegible] as an optional extra.

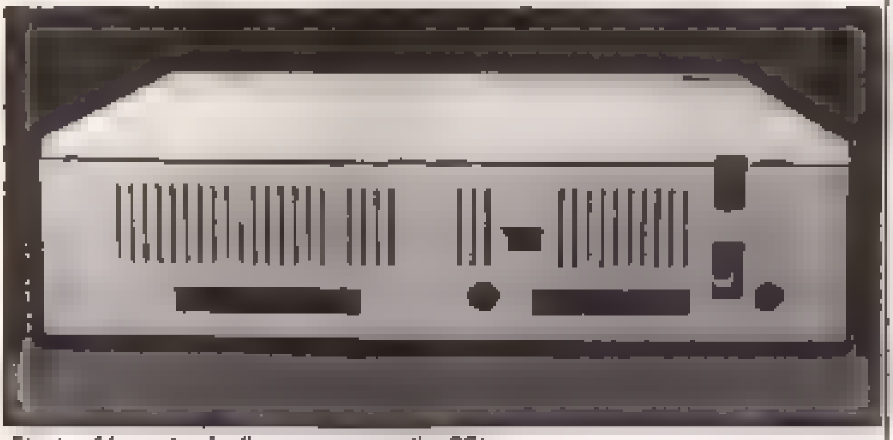
There are outputs for a domestic TV set and for an RGB monitor. Using the IBM PC colour monitor, this [illegible] crisp display — but you need to buy an adaptor to plug it [illegible] and [illegible]. The PCjr's [illegible] Graphics and [illegible] capabilities are as for the PC, i.e. good but not outstanding. The machine has an 80-column display mode but you need a monitor (monochrome or colour) to use it.

You can upgrade your PCjr by adding a 64k RAM expansion to get better graphics and you can add up to two joysticks, which are extra.

[illegible] parallel and a single 320k 5 inch disk drive with DOS 2.1 [illegible]. The machine then becomes a disk [illegible] compatible with the PC [illegible] wholly software compatible.

[illegible] have a disk-based PCjr [illegible] think [illegible] without buying Cartridge Basic too. Although the DOS disk contains two Basics (standard MicroSoft and Advanced Basic) neither will work without the cartridge — you [illegible] a message saying Cartridge [illegible] and the machine crashes.

One thing the PCjr has [illegible] quality, which frankly has never been a strong point of Sinclair machines. When IBM builds a computer it [illegible] with [illegible] mouldings and a [illegible] solid feel. In the case of the keyboard the feel is too solid — [illegible] awkwardly shaped keys [illegible] more difficult [illegible] by [illegible] down, making touch-typing very difficult [illegible]. Doubtless at some stage soon IBM will offer a full sized PC-style keyboard for the PCjr as an option. It will [illegible] be interesting [illegible].



Plenty of (non-standard) connectors on the PCjr

Conclusions

How [illegible] do the two machines compare after this brief overview? On paper at least, the QL wins hands down. Although no UK price has been announced for the PCjr, it will almost certainly cost at least almost [illegible] the price of a QL for the [illegible] 64k diskless model. Add the [illegible] memory and the disks and the price will be heading towards the [illegible]. [illegible] but [illegible] you with a lot [illegible].

Of course if you have a PC at work and you want a similar but cheaper machine to use at home, the PCjr would obviously be very much in the running, apart from the nagging doubt [illegible] software compatibility [illegible] yet to be fully resolved. It's certain, though, that many software houses — especially in the US — will start [illegible] PCjr versions of existing PC packages where necessary — once they can tear themselves away from the Macintosh [illegible]. [illegible] might have [illegible] PC [illegible] of the packages you use at work [illegible] be able to use the same data disks.

Meanwhile, even without being compared to the PCjr, the QL has [illegible] despite the [illegible] Sinclair [illegible] which has delayed deliveries. While there may not be vast pools of software available for the QL, a degree of IBM compatibility [illegible] the QL is the [illegible]. After all, even if you have to wait for Sinclair to deliver the goods, the wait must be shorter than for the PCjr.

BUDDING RIVALRY

by Sid Smith, News Editor, Micronet 800

If you're wondering what links the QL and Acorn, look at these remarks, all made at the QL launch either by Clive Sinclair or Nigel Searle.

The BBC Micro was designed a long time ago, so it's pretty much behind the times.

Unlike the BBC machine, the QL will not be made overseas.

We're certainly still interested in talking to the BBC about the QL or a derivative becoming the BBC Model C.

We would very much like to redress the balance of what we have long considered a most unfair arrangement whereby a respected competitor gets massive free publicity from the BBC.

Watch Acorn's shares over the next few days to see what impact the QL will have.

Such gleeful aggression, plus a remarkable price 'coincidence', should convince you that the BBC Micro is seen by Sinclair as the QL's chief rival.

The QL's success may well spell death to the BBC machine.

Schools bid

Sinclair has already made moves to invade two prestige areas where the BBC Micro has always been dominant. The first of these is the education market.

Sinclair is well aware of how exposure at school can lead into the home. And the company is determined that the QL will be included in any future lists of machines qualifying for the Government's educational subsidy.

David Parks, Sinclair's education chief, told me that the Government's 50 percent subsidy on computers for schools [illegible] what he called the Rolls-Royce syndrome whereby teachers consider that they might as well get £400 on a BBC machine rather than £80 on a Spectrum.

In future that syndrome combined with the QL's [illegible] (consider how useful the machine's ability to network with Spectrums will prove for a school full of Sinclair machines) is bound to operate to the detriment of the BBC Micro.

Acorn's Chris Curry: 'What about Unix?'

Cost battle

The Acorn machine's second great area of strength lies in its association with the BBC.

The remarks from Clive Sinclair quoted above indicate how seriously the company takes Acorn's exclusive link with the Corporation. Even before the QL launch, meetings took place between Sinclair and the BBC to discuss the adoption of the forthcoming machine as a BBC Micro.

Nigel Searle has said that he is not asking the BBC for an arrangement which excludes the Acorn machine. Anything which favours the emergence of a single machine is premature. It's conceivable that we could be talking about getting our machine to be one of two later. I think it's good for children's education if the market is kept open to new products and wouldn't be happy about an exclusive arrangement.

The BBC Micro has an aura of official backing. It's the exclusivity that bothers us.

It should be pointed out, however, that Nigel Searle's claim to be content with sharing the BBC's endorsement with the Acorn machine was made before the QL was launched. Since the machine appeared, the idea of any market peaceably divided between the computers has become untenable. The two have exactly the same price. The QL has a higher specification.

These two facts mean that the old situation in which Sinclair and Acorn machines were sufficiently separated in price not to compete seriously with each other is now over. Any sale won by the QL is a sale lost by the BBC Micro and vice versa.

But having said all that, there are still powerful reasons why the BBC might want to continue its association with Acorn.

The reason given in public is that the Corporation feels that any new BBC Micro must offer continuity with the existing machine. Indeed, one BBC executive told me that he considered the BBC would be breaking its Charter obligation to educate the nation if it compromised its Computer Literacy Project by not maintaining this compatibility.

The second — and more private — reason is money. Put simply, the BBC has sunk an enormous amount of time and money into the Acorn machine and continues to reap handsome rewards from its investment.

The Corporation's association with Acorn dates back to the design stage of the BBC Micro. Many of the machine's principal characteristics, including the existence of Mode 7 and the specifications for BBC Basic (on which the Corporation still holds copyright) were laid down in the early stages of that association.

And the re-naming of the Acorn Proton to the Acorn BBC Micro has transformed Acorn's effect on the Corporation's balance books has also been beneficial. The BBC's royalty earnings on the Acorn micro have been placed at anything between £3½ million (which is too low) and £5 million (which is probably too high).

By the way, it's a handy sum. As an Acorn man once muttered: "Just take it from me, we're definitely helping to keep your licence fee down."

In contrast, the BBC would earn nothing at all from promoting the QL and though the Corporation might eventually feel obliged to embrace the technical sophistication offered by Sinclair's machine, it has no incentive to do so [illegible] the exclusion of the Acorn device.

But what has Acorn to say about the QL?

I brought first news of the QL to Acorn, delivering a press pack into the hands of Chris Curry on my way back from the QL launch. His first words were: "Unix [illegible] doesn't say anything about Unix." That, in effect, has been the Acorn reaction ever since.

The QL, says Acorn, is a business machine which has been launched without compatibility with any of the established business operating systems such as Unix. For that reason it will fail, says Acorn.

"The QL is very good," conceded Hermann Hauser, the other co-founder of Acorn. "But it's a cul-de-sac. Nowadays computers must fit in with other computers. We can be very ambitious and Sinclair has always been ambitious [illegible] and think that we can create our own standards, but in fact computers nowadays must always give compatibility."

Acorn, of course, has hit a sensitive spot with this accusation: the lack of compatibility with any standard operating system — coupled with the Microdrives — is probably the feature of the QL most likely to upset the business buyer.

Acorn's stress on this aspect of the QL probably springs from its own preoccupation with standard operating systems for its developments of the BBC Micro and for the forthcoming Acorn Business Machine.

For the BBC's 16032 second processor, Acorn has engaged Logica to produce a version of Microsoft's Xenix, an adaptation of the Unix operating system which Sinclair has so ignored. And Dr Martin Richards of Cambridge is known to be working for Acorn on a version of the Tripos operating system, again for the 16032.

Business ambitions

Xenix and Tripos will also have relevance to the Acorn Business Machine (ABM) which Acorn intends to launch sometime in the latter half of this year. It is believed that one version of the ABM, intended for

Hermann Hauser: "It's a cul-de-sac."

computer-aided design work, will contain the 16032.

Acorn has said nothing officially about the specifications of the ABM but an apparent report of remarks made by Chris Curry would seem to confirm industry speculation that the machine will comprise the established BBC board, with a Z80 second processor, disk drives and a VDU, at around £1000.

The presence of the ageing Z80 chip is explicable by the access it gives to business software running under the CP/M operating system. But many observers would agree with Nigel Searle who said at the QL launch: "I think that the Z80 giving access to business software through the CP/M operating system is very rapidly going to be outdated. I don't think that the business software available through CP/M is going to meet the needs of the huge new markets for professional computers."

Indeed, if the speculation about the ABM is correct and Acorn takes no steps to upgrade the machine as a result of the QL, the whole project looks shaky, especially bearing in mind that the ABM is not expected to appear for at least another six months, by which time the circa £1000 16-bit business micro scene will be ultra-competitive.

And although there are compelling reasons why a computer costing around £1000 should offer a standard operating system like CP/M, the same is not true of the £399 QL.

Acorn's [illegible] point about the lack of links to any other software standard provides an incomplete defence. It ignores the question: if Acorn can describe the £399 QL as a failed business micro, how would it defend the £399 BBC Micro from the same charge?

It confuses another. Why should a QL need compatibility with 100,000 other micros when it can have compatibility with 100,000 QLs? Or to put it another way, does a business machine sold in sufficient numbers automatically become an industry standard?

It begs a third. How many word processors or spreadsheets or databases or graphics facilities do most people need anyway? If the Psion software is of reasonable quality, what more will the average businessman want?

In short, the QL seems not only to threaten the BBC Micro at its present point but it also attacks Acorn's long-cherished but long-delayed ambition to move the BBC Micro upwards into the business sector. So what is Acorn going to do about the QL?

Well, the delivery delays which have afflicted Sinclair, and the inevitable shortages which will continue until QL production is ramped up, have given Acorn a brief breathing space.

Eventually, though, the company will have to decide between dropping the price of the BBC Micro and upgrading its specification. Of the two, the least likely would seem to be a price reduction.

In the years since the launch of the BBC Micro, Acorn has been almost unique in the micro world in resisting price cuts. A reduction now would surely seem too great an admission of defeat.

I also suspect that the Acorn management would have a temperamental aversion to conceding that its machine was worth less than the QL.

So perhaps Acorn will take advantage of that extraordinary facility of the BBC Micro to accept plug-in software and sell the machine — as in the States — with a couple of 'sideways' ROM chips already fitted.

Whatever Acorn does, it had better be good.

SEARLE'S S

Adam Denning speaks to Sinclair MD Nigel Searle

[illegible]

[illegible]

[illegible]

OOTHINGS

[illegible] cheap that everybody buying a Microdrive said, 'I'll have 10 please.' We would then fall on [illegible]

THE SUPER B

Starting here, a complete course in prog

In the first issue of QL User we described SuperBasic in fairly close detail. SuperBasic is what Sinclair calls the Basic resident in the QL and, as we saw, the Super [illegible].

We went on (and on) about how SuperBasic was derived in part from those [illegible] languages BCPL, Pascal and C without [illegible] describing what we mean or what the advantages are [illegible] language. As a lot of QL owners will be fairly new to computing — and almost certainly new to [illegible] we're running this series on getting to grips with programming and with SuperBasic [illegible].

[illegible] knowledge of programming will be assumed but you should be conversant [illegible] your QL and switching it on. You should also have the User Guide to hand.

A computer is a 'blank' machine [illegible] designed to perform [illegible] range [illegible]. However [illegible] do nothing at all unless it is given a list of instructions [illegible] program [illegible] which tell [illegible] in great detail.

The language which [illegible] can be represented by a long series of 1s and 0s but while these are crammed with meaning for the computer they are completely incomprehensible [illegible]. [illegible] number of computer languages have been developed which allow you to write your program in an [illegible] understand and follow. Of course [illegible] understand such a program, so additionally, programs have been developed which interpret the human-level instructions into computer-understandable code.

A wide range of these programming languages has been developed, each of [illegible] for a specific applications area — writing accounts programs, for instance, or controlling industrial processes. The QL comes equipped with a built-in interpreter for the Basic language (Basic stands for Beginner's All-purpose Symbolic Instruction Code) [illegible] was designed for ease of learning but still allows you [illegible] sophisticated computing tasks.

Let's begin. Switch on your QL and type:

Listing 1

and then press the ENTER key. Hey presto! 'A message to the world' appears on the screen. If it doesn't, then you must have typed in something incorrect, in which case [illegible] machine [illegible] again [illegible] type in the line exactly as it appears above. Later we'll discover a better way of correcting mistakes.

What we have done so far may or may not seem spectacular, depending on your level of experience. In any [illegible] tell the QL to do something that it already knew how to do. Further, if we want the [illegible] again [illegible] the same command: later you'll see how we can get our QL to perform [illegible] without our needing to prompt it each time.

To start programming then, we have to give the QL a [illegible] commands, each of which it knows how to do but which do something that one command alone could not have done. This group of commands is [illegible]

Listing 1

```
PRINT "A message to the world"
```

Listing 2

```
LET QL = 4
```

Listing 3

```
LET QL = QL + 4
```

Listing 4

```
LET FRED = 5
PRINT FRED
LET FRED = FRED + 3
PRINT FRED
```

Listing 5

```
FRED = 6
ERIC = 4
JOHN = FRED + ERIC
PRINT JOHN
```

Listing 6

```
QL = 2 * QL + LN(SQR(93.21))
```

Let's write a program which [illegible] name and age and then print a message saying 'Hello' to you with an [illegible] your age.

In Basic, each line of a program is given a line number. This isn't done purely for the sake of [illegible] ferent parts of a program [illegible] a value, then go to line number 500 and carry on there'. It is this ability to [illegible] courses of action depending on the outcome of [illegible] which give computers their power [illegible].

As we saw [illegible] type a command without a line number [illegible] recognises that no line number has been typed in and assumes you want it to [illegible] immediately as I did with the example above. In SuperBasic, then, as with most [illegible] to grips with is that of [illegible]. A variable is nothing more than a box in which the QL puts numbers [illegible] during the execution of a program. Each of these [illegible] you, the programmer, decide on. Usually [illegible] an idea of what the variable is being used for: TOTAL, for instance, or DATE. When [illegible] first turn on the computer these variables don't [illegible] them first, as there's not a [illegible] thousands [illegible]

ASIC COURSE

ramming in SuperBasic, by Adam Denning

use the LET statement in SuperBasic. We can say

[redacted]

for instance, which will declare a variable called QL and at the same time assign a value of 4 to it. In other words, the computer will [illegible] memory, give it the name [illegible]. Now each time you use QL in your program the [illegible] 'box' called QL and find the value 4.

The word variable is used [illegible] contents of the box to anything we like, simply by assigning a new value to it

[redacted]

[illegible] sense mathematically but perfectly logical to the computer. What it says is, find the box called QL and add 4 [illegible] already set the value of QL [illegible] would then change that value to 8. If you want you can experiment by assigning values to variables [illegible] using line numbers. Don't [illegible] this way — nothing you type at the keyboard can [illegible] you get weird results or the machine seems to lock up don't panic but switch the machine off and on again [illegible]

Try this sequence (but remember to press the ENTER key at the end of [illegible] computer that you have finished typing in a command [illegible] execute that command):

[redacted]

[illegible] when you first PRINT FRED

and [illegible] cidentally the word LET is [illegible] we won't be using it again. It is there simply for the sake of convenience and for compatibility with some other Basics which insist on its use [illegible] Spectrum Basic.

[illegible] gathered by now we don't have to use only specific numbers when we assign values to variables [illegible] we can use the values of other variables

[redacted]

[illegible]

[redacted]

[illegible] contain numbers, they can if you want them to, hold [illegible] single characters. The type of variable which does this is slightly different to the variable which holds [illegible] sign at the end. The dollar sign means *string*, because a sequence of characters [illegible] any number of them, even zero) is called a string. Thus, variables ending in a $ are [illegible]

```
Listing 7
NAME$ = "[illegible]"
AGE = 55
PRINT NAME$
PRINT AGE

Listing 8
AGE = "Too old"

Listing 9
NAME$ = [illegible]
PRINT NAME$

Listing 10
NAME$ = 12345
```

[illegible] a string of characters, we need a string variable to [illegible] NAME$. Then we need a numeric variable to hold the person's age [illegible] we'll call this one AGE. You can see these at work by typing the following, but putting your own name in place of the phrase 'Your name' (and don't forget to hit ENTER at the end [illegible]

```
Listing 11
FIRST$ = 2
SECOND$ = 2
PRINT FIRST$ + SECOND$

Listing 12
10 NAME$ = "Fred"
20 AGE = 97
30 PRINT "The age of ";NAME$;" is ";AGE
```

[redacted]

Remember that the computer differentiates between string and numeric variables and won't allow you to assign a string to a numerical variable. Try

[redacted]

and you'll get an error message). However [illegible] to a string variable, as long as you enclose them in quotes.

[redacted]

[illegible] reply [illegible]

[redacted]

[illegible] operations such as addition, subtraction, etc [illegible] stores them in its memory in a different way to that used when it stores strings. So if you store a number as a string, you won't be able [illegible]

[redacted]

but don't expect to get the answer 4.

We are now in a position to write a simple program which prints out somebody's name and age [illegible] age for your own.

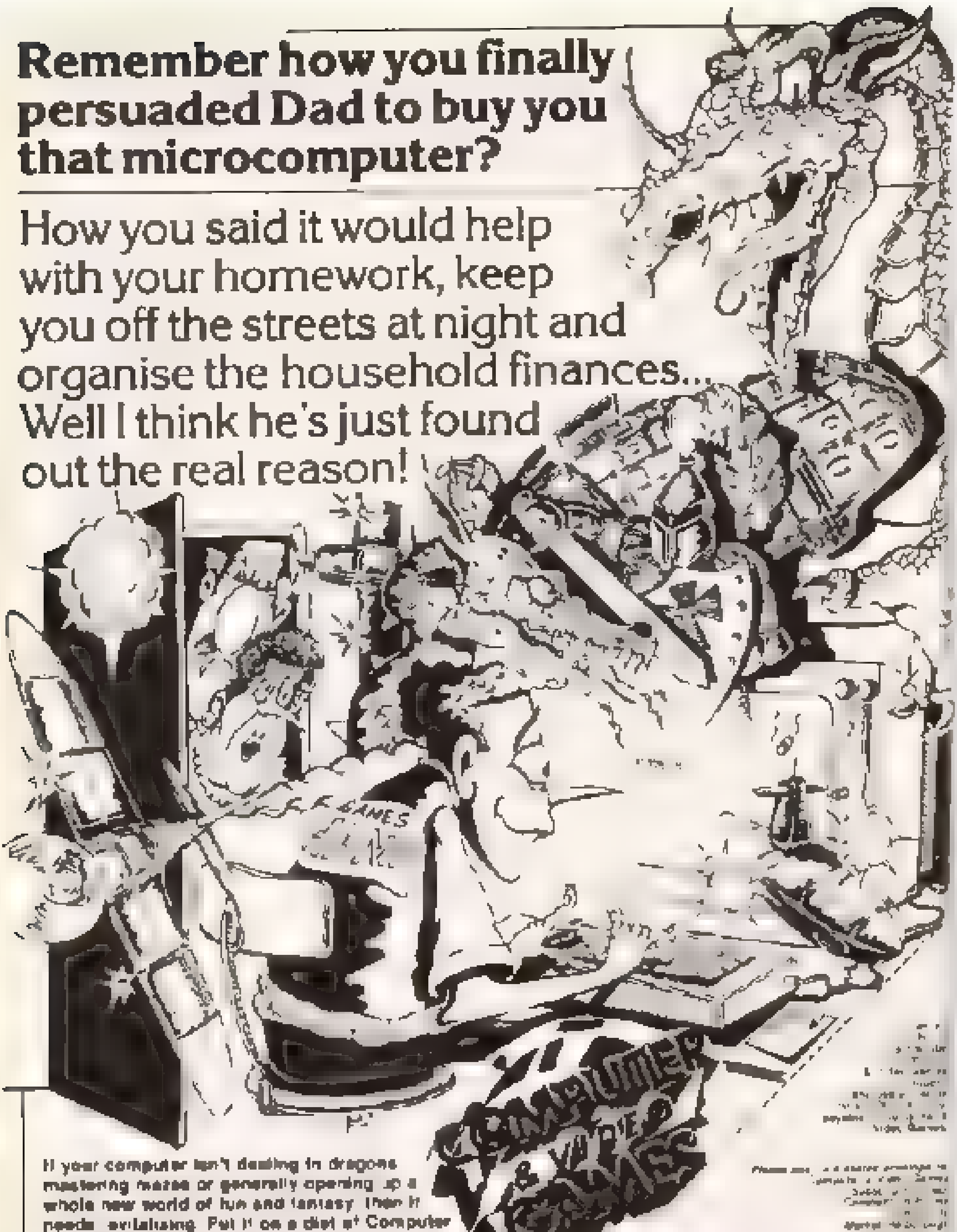
[redacted]

[illegible] by typing LIST and hitting ENTER. The [illegible]

[illegible] things to notice about this program. Firstly the line numbers are in increments [illegible] makes it easier to insert lines later if you realise you omitted something from a program. Secondly, we have [illegible] within a single PRINT statement [illegible] enclosed in quotes to make the answer intelligible. The [illegible] the value of each variable as it encounters the [illegible] What happens if you enclose the entire line in quotes and leave [illegible] the quotes within the line?

Remember how you finally persuaded Dad to buy you that microcomputer?

How you said it would help with your homework, keep you off the streets at night and organise the household finances... Well I think he's just found out the real reason!



If your computer isn't dealing in dragons mastering mazes or generally opening up a whole new world of fun and fantasy then it needs revitalising. Put it on a diet of Computer & Video Games magazine. A monthly dose will work wonders.

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[illegible]

[illegible]

Name

Address

Telephone

Signature

Notice too the use of se[illegible] the variables. Try re-typing line 30 but use commas instead of semi-colons, RUN the program and notice how the commas cause gaps to appear in the line when it's PRINTed. Now re-type line 30, substituting apostrophes (') fo[illegible] the commas and see what happens.

Listing 13

```
INPUT NAME$
```

Listing 14

```
INPUT "What is your name ;NAME$
```

Listing 15

```
10 INPUT "What is your name ";NAME$
20 INPUT "How old are you ";AGE
```

Listing 16

```
30 PRINT "Hello, ";NAME$;", how are you?"
```

Incidentally, to alter line 30 you don't need to re-type [illegible] the old one. Once you've RUN the program, type 30 and hit ENTER, then LIST the program again — you'll find that line 30 has disappeared. This is a handy way of getting rid of unwanted lines.

The above program has a considerable disadvantage. The string assigned to NAME$ and the value assigned to AGE are both [illegible] use the program he has to alter it to include his own name and age just as you did. It would be more con[illegible] these values when the program is RUN. Such a convenience is provided by the INPUT statement. [illegible] INPUT in the following [illegible]

[illegible]

This will accept anything typed in by the user until he hits ENTER and place it in the variable called NAME$. [illegible] included in a program, al[illegible] when the INPUT statement is reached is a question mark. We need a way of presenting a *prompt* to the user reminding him what to type in. INPUT can in fact be used rather like PRINT to do [illegible]

[illegible]

Everything within the quotes will be printed out [illegible] type in the following:

[illegible]

[illegible] ticularly useful [illegible] yet.

Next, we want a way of [illegible] print a friendly message [illegible] NAME$ so we can use the PRINT statement just as we did earlier:

[illegible]

Make sure you get the quotes and semi-colons correct. LIST the program to check.

The last thing we need is a way of printing a different [illegible] and structured facilities which we'll take advantage of.

The SELECT statement [illegible] things for a range of values or just one particular value and we can also make it do something else if the value of the variable is not within one of the values or ranges we specified. So, let's say that we use AGE as the [illegible] age." If it is exactly 21 it prints "What, today? I don[illegible] [illegible] illustrate the power of the SELECT statement [illegible] extra lines:

[illegible]

[illegible] ENTER [illegible] it a few times and experiment with changing the age [illegible] program also treats us to a little tuition on *algorithms*. An algorithm is simply a long name for the method by which we mean to solve a task or problem. Note that in this sort of programming the algorithm must be [illegible] results (ie. wrong results [illegible] reference, RUN the program again and type in an age of 18.5. Why does it [illegible] your age again!"? Surely this isn't what we intended?

Well, no, it isn't, but our algorithm was written in such a way that the computer is given no choice but to interpret it that way. The problem lies in the definition of ages in the SELECT statement. You [illegible] notice, if you examine the [illegible] ages which are greater than 18 but less than 19. The best way of dealing with this is [illegible] If we make it 19, then both [illegible] executed if the age is 19, which is clearly wrong. So we have to extend it to a [illegible] which is as near to 19 as [illegible] actually 19. Problems are caused here by the phenomenal accuracy of the QL [illegible] tions — it knows that even [illegible] than 19, so if we changed line 50 to

[illegible]

[illegible] 8.95, neither lines 60 or 80 would be executed. [illegible] show you a way around this and then we'll start to do some more exciting things.

Listing 17

```
40 SELECT ON AGE
50   ON AGE = 0 TO 18
60   PRINT "You're a bit young for this, aren't you?"
70   ON AGE = 19 TO 20
80   PRINT "You should have better things to do at your age
90   ON AGE = 21
100  PRINT "What, today?  I don't believe you!"
110  ON AGE = REMAINDER
120  PRINT "I won't mention your age again!"
130 END SELECT
```

Listing 18

```
50 ON AGE = 0 TO 18.9
```

THAT SOFTWARE

The background

Software 'bundling' — the inclusion of software in the purchase price of a computer — is no new phenomenon, even at the home computing end of the market. Nor is it surprising that Sinclair, having decided to offer software with the QL, should take the packages from Psion.

Psion has, after all, long enjoyed a relationship with Sinclair so close as to resemble in-house concerns like Acorn's Acornsoft. Indeed, much of Psion's prosperity has been built on an early determination to exploit the new market for high volume games software opened up by the successes of the Sinclair range of machines. Psion has been so successful, in fact, in emulating the Sinclair ability to move product in high volume that the company recently notched up its three millionth software sale.

Many of the most remarkable programs available for earlier Sinclair machines — Flight Simulation, Scrabble and Chequered Flag, for example, have come from Psion, but like all the company's products, they were sold to Sinclair for worldwide marketing — Psion retained only the intellectual rights to the programs.

What is remarkable about the material bundled with the QL is its exclusively business orientation. In the past, home computer manufacturers have always been able to rely on one-man software houses to generate the material needed to support new machines. Such material has perforce been simple and heavily biased towards the games player.

But the QL is intended to be the first machine to bridge the gap between the previously separate worlds of home and business computing. For this machine, therefore, Sinclair has wisely decided that it could not rely on such a haphazard approach for the business software it requires.

So that the QL should be immediately attractive to the business user, the company has chosen to supply it with three of the most widely used business packages — word processing, database and spreadsheet, along with an example of an increasingly fashionable genre, business graphics.

IBM Personal Computer
Hardware Reference Library
Cartridge BASIC

IBM packs its PCjr software in ROM.

A certain degree of family resemblance between the programs demonstrates their common parenthood. For instance, the screen is split into three sections. In all four packages, the screen displays an upper zone reserved as a prompts box, a central area where the main function of the program is displayed, and a lower portion giving miscellaneous details of the package's current status.

The prompts box monitors the user's commands, giving a record of actions in progress and acting as a memory-jogger for functions available via the QL's programmable keys.

The second, central zone is the data area. This is the largest section and displays the meat of the four packages — the spreadsheet, database, text or graphics in use.

The third and lowest zone contains information such as current command, current mode, memory remaining, etc.

Another common feature is the availability of a Help function at all times, allowing the user to exit from any part of the operation — even in the middle of inputting — and returning him to the exact point of departure after the consultation.

But although the four packages do have these family resemblances, the Psion material as a whole is only partly integrated into the unique operating environment of the QL, adding weight to industry rumours that Psion was until recently offering the programs to other manufacturers. Names mentioned include Apple and IBM . . .

Whatever the explanation — and it may be simply that the QDOS operating system had not been available to Psion long enough — the four packages cannot be held simultaneously in the QL's memory, and only a limited amount of data swapping between them is possible. So the QL's much-mentioned multi-tasking capabilities cannot be exercised on the bundled Psion material.

'Import' and 'export' commands do exist, though, enabling some raw data to be transferred between the programs via a common file format. Only time and frequent usage will clarify the precise scope and usefulness of this facility.

But one feature of Sinclair's software back-up for the QL does already seem like an exceedingly good idea: the QL Users' Bureau (QLUB) which will provide members with an advice service — run by Psion — as well as regular software upgrades for the four packages.

There's something refreshing about the admission here that software is constantly improvable and for £35 a year the service looks like a great investment for any QL owner. And thrown in with QLUB membership is a bi-monthly newsletter containing latest QL developments.

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Psion profile

We take [illegible] software house which rose to fame and fortune with its Sinclair products.

Inside QDOS

The QL [illegible] by using its very own operating system. We put it under the microscope.

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